PTO 1644

RAW SEQUENCE LISTING DATE: 02/22/2001
PATENT APPLICATION: US/09/267,719B TIME: 10:32:00

Input Set : A:\Hs110pl.app
Output Set: N:\CRF3\02222001\I267719B.raw

<110> APPLICANT: Burks Jr., A. Wesley
Helm, Ricki M.
Cockrell, Gael
Bannon, Gary A.
Stanley, J. Steven
Shin, David S.
Compadre, Cesar M.
Huang, Shau-Ku
Maleki, Soheila J.
Kopper, Randall A.
<120> TITLE OF INVENTION: Tertiary Structure of Peanut Allergen ARA H 1
<130> FILE REFERENCE: HS 110
<140> CURRENT APPLICATION NUMBER: 09/267,719B
<141> CURRENT FILING DATE: 1999-03-11
<150> PRIOR APPLICATION NUMBER: 60/077,763
<151> PRIOR FILING DATE: 1998-03-13
<160> NUMBER OF SEQ ID NOS: 13
<170> SOFTWARE: PatentIn Ver. 2.1
<210> SEQ ID NO: 1
<211> LENGTH: 626
<212> TYPE: PRT
<213> ORGANISM: Arachis hypogaea
<400> SEQUENCE: 1

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  1               5                  10                  15
Leu Ala Ser Val Ser Ala Thr His Ala Lys Ser Ser Pro Tyr Gln Lys
             20                  25                  30
Lys Thr Glu Asn Pro Cys Ala Gln Arg Cys Leu Gln Ser Cys Gln Gln
         35                  40                  45
Glu Pro Asp Asp Leu Lys Gln Lys Ala Cys Glu Ser Arg Cys Thr Lys
     50                  55                  60
Leu Glu Tyr Asp Pro Arg Leu Val Tyr Asp Pro Arg Gly His Thr Gly
 65                  70                  75                  80
Thr Thr Asn Gln Arg Ser Pro Pro Gly Glu Arg Thr Arg Gly Arg Gln
                 85                  90                  95
Pro Gly Asp Tyr Asp Asp Asp Arg Arg Gln Pro Arg Arg Glu Glu Gly
            100                 105                 110
Gly Arg Trp Gly Pro Ala Gly Pro Arg Glu Arg Glu Arg Glu Glu Asp
        115                 120                 125
Trp Arg Gln Pro Arg Glu Asp Trp Arg Arg Pro Ser His Gln Gln Pro
    130                 135                 140
Arg Lys Ile Arg Pro Glu Gly Arg Glu Gly Glu Gln Glu Trp Gly Thr
145                 150                 155                 160
Pro Gly Ser His Val Arg Glu Glu Thr Ser Arg Asn Asn Pro Phe Tyr
                165                 170                 175
Phe Pro Ser Arg Arg Phe Ser Thr Arg Tyr Gly Asn Gln Asn Gly Arg
            180                 185                 190
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RAW SEQUENCE LISTING DATE: 02/22/2001
PATENT APPLICATION: US/09/267,719B TIME: 10:32:00

Input Set : A:\Hsll0pl.app
Output Set: N:\CRF3\02222001\I267719B.raw

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70 Ile Arg Val Leu Gln Arg Phe Asp Gln Arg Ser Arg Gln Phe Gln Asn
71         195                 200                 205
73 Leu Gln Asn His Arg Ile Val Gln Ile Glu Ala Lys Pro Asn Thr Leu
74     210                 215                 220
76 Val Leu Pro Lys His Ala Asp Ala Asp Asn Ile Leu Val Ile Gln Gln
77 225                 230                 235                 240
79 Gly Gln Ala Thr Val Thr Val Ala Asn Gly Asn Asn Arg Lys Ser Phe
80                 245                 250                 255
82 Asn Leu Asp Glu Gly His Ala Leu Arg Ile Pro Ser Gly Phe Ile Ser
83             260                 265                 270
85 Tyr Ile Leu Asn Arg His Asp Asn Gln Asn Leu Arg Val Ala Lys Ile
86         275                 280                 285
88 Ser Met Pro Val Asn Thr Pro Gly Gln Phe Glu Asp Phe Phe Pro Ala
89     290                 295                 300
91 Ser Ser Arg Asp Gln Ser Ser Tyr Leu Gln Gly Phe Ser Arg Asn Thr
92 305                 310                 315                 320
94 Leu Glu Ala Ala Phe Asn Ala Glu Phe Asn Glu Ile Arg Arg Val Leu
95                 325                 330                 335
97 Leu Glu Glu Asn Ala Gly Gly Glu Gln Glu Glu Arg Gly Gln Arg Arg
98             340                 345                 350
100 Trp Ser Thr Arg Ser Ser Glu Asn Asn Glu Gly Val Ile Val Lys Val
101         355                 360                 365
103 Ser Lys Glu His Val Glu Glu Leu Thr Lys His Ala Lys Ser Val Ser
104     370                 375                 380
106 Lys Lys Gly Ser Glu Glu Glu Gly Asp Ile Thr Asn Pro Ile Asn Leu
107 385                 390                 395                 400
109 Arg Glu Gly Glu Pro Asp Leu Ser Asn Asn Phe Gly Lys Leu Phe Glu
110                 405                 410                 415
112 Val Lys Pro Asp Lys Lys Asn Pro Gln Leu Gln Asp Leu Asp Met Met
113             420                 425                 430
115 Leu Thr Cys Val Glu Ile Lys Glu Gly Ala Leu Met Leu Pro His Phe
116         435                 440                 445
118 Asn Ser Lys Ala Met Val Ile Val Val Val Asn Lys Gly Thr Gly Asn
119     450                 455                 460
121 Leu Glu Leu Val Ala Val Arg Lys Glu Gln Gln Gln Arg Gly Arg Arg
122 465                 470                 475                 480
124 Glu Glu Glu Glu Asp Glu Asp Glu Glu Glu Glu Gly Ser Asn Arg Glu
125                 485                 490                 495
127 Val Arg Arg Tyr Thr Ala Arg Leu Lys Glu Gly Asp Val Phe Ile Met
128             500                 505                 510
130 Pro Ala Ala His Pro Val Ala Ile Asn Ala Ser Ser Glu Leu His Leu
131         515                 520                 525
133 Leu Gly Phe Gly Ile Asn Ala Glu Asn Asn His Arg Ile Phe Leu Ala
134     530                 535                 540
136 Gly Asp Lys Asp Asn Val Ile Asp Gln Ile Glu Lys Gln Ala Lys Asp
137 545                 550                 555                 560
139 Leu Ala Phe Pro Gly Ser Gly Glu Gln Val Glu Lys Leu Ile Lys Asn
140                 565                 570                 575
142 Gln Lys Glu Ser His Phe Val Ser Ala Arg Pro Gln Ser Gln Ser Gln
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RAW SEQUENCE LISTING DATE: 02/22/2001
PATENT APPLICATION: US/09/267,719B TIME: 10:32:00

Input Set : A:\Hsl10pl.app
Output Set: N:\CRF3\02222001\I267719B.raw

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143             580                 585                 590
145 Ser Pro Ser Ser Pro Glu Lys Glu Ser Pro Glu Lys Glu Asp Gln Glu
146         595                 600                 605
148 Glu Glu Asn Gln Gly Gly Lys Gly Pro Leu Leu Ser Ile Leu Lys Ala
149     610                 615                 620
151 Phe Asn
152 625
155 <210> SEQ ID NO: 2
156 <211> LENGTH: 371
157 <212> TYPE: PRT
158 <213> ORGANISM: Phaseolus vulgaris
160 <400> SEQUENCE: 2
161 Asp Asn Pro Phe Tyr Phe Asn Ser Asp Asn Ser Trp Asn Thr Leu Phe
162   1               5                  10                  15
164 Lys Asn Gln Tyr Gly His Ile Arg Val Leu Gln Arg Phe Asp Gln Gln
165             20                  25                  30
167 Ser Lys Arg Leu Gln Asn Leu Glu Asp Tyr Arg Leu Val Glu Phe Arg
168         35                  40                  45
170 Ser Lys Pro Glu Thr Leu Leu Leu Pro Gln Gln Ala Asp Ala Glu Leu
171     50                  55                  60
173 Leu Leu Val Val Arg Ser Gly Ser Ala Ile Leu Val Leu Val Lys Pro
174 65                  70                  75                  80
176 Asp Asp Arg Arg Glu Tyr Phe Phe Leu Thr Ser Asp Asn Pro Ile Phe
177                 85                  90                  95
179 Ser Asp His Gln Lys Ile Pro Ala Gly Thr Ile Phe Tyr Leu Val Asn
180             100                 105                 110
182 Pro Asp Pro Lys Glu Asp Leu Arg Ile Ile Gln Leu Ala Met Pro Val
183         115                 120                 125
185 Asn Asn Pro Gln Ile His Glu Phe Phe Leu Ser Ser Thr Glu Ala Gln
186     130                 135                 140
188 Gln Ser Tyr Leu Gln Glu Phe Ser Lys His Ile Leu Glu Ala Ser Phe
189 145                 150                 155                 160
191 Asn Ser Lys Phe Glu Glu Ile Asn Arg Val Leu Phe Glu Glu Glu Gly
192                 165                 170                 175
194 Gln Gln Glu Gly Val Ile Val Asn Ile Asp Ser Glu Gln Ile Lys Glu
195             180                 185                 190
197 Leu Ser Lys His Ala Lys Ser Ser Ser Arg Lys Ser Leu Ser Lys Gln
198         195                 200                 205
200 Asp Asn Thr Ile Gly Asn Glu Phe Gly Asn Leu Thr Glu Arg Thr Asp
201     210                 215                 220
203 Asn Ser Leu Asn Val Leu Ile Ser Ser Ile Glu Met Glu Glu Gly Ala
204 225                 230                 235                 240
206 Leu Phe Val Pro His Tyr Tyr Ser Lys Ala Ile Val Ile Leu Val Val
207                 245                 250                 255
209 Asn Glu Gly Glu Ala His Val Glu Leu Val Gly Pro Lys Gly Asn Lys
210             260                 265                 270
212 Glu Thr Leu Glu Tyr Glu Ser Tyr Arg Ala Glu Leu Ser Lys Asp Asp
213         275                 280                 285
215 Val Phe Val Ile Pro Ala Ala Tyr Pro Val Ala Ile Lys Ala Thr Ser
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RAW SEQUENCE LISTING DATE: 02/22/2001
PATENT APPLICATION: US/09/267,719B TIME: 10:32:00

Input Set : A:\Hsl10pl.app
Output Set: N:\CRF3\02222001\I267719B.raw

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216     290                 295                 300
218 Asn Val Asn Phe Thr Gly Phe Gly Ile Asn Ala Asn Asn Asn Asn Arg
219 305                 310                 315                 320
221 Asn Leu Leu Ala Gly Lys Thr Asp Asn Val Ile Ser Ser Ile Gly Arg
222                 325                 330                 335
224 Ala Leu Asp Gly Lys Asp Val Leu Gly Leu Thr Phe Ser Gly Ser Gly
225             340                 345                 350
227 Asp Glu Val Met Lys Leu Ile Asn Lys Gln Ser Gly Ser Tyr Phe Val
228         355                 360                 365
230 Asp Ala His
231     370
234 <210> SEQ ID NO: 3
235 <211> LENGTH: 510
236 <212> TYPE: PRT
237 <213> ORGANISM: Arachis hypogaea
239 <400> SEQUENCE: 3
240 Ile Ser Phe Arg Gln Gln Pro Glu Glu Asn Ala Cys Gln Phe Gln Arg
241   1               5                  10                  15
243 Leu Asn Ala Gln Arg Pro Asp Asn Arg Ile Glu Ser Glu Gly Gly Tyr
244             20                  25                  30
246 Ile Glu Thr Trp Asn Pro Asn Asn Gln Glu Phe Glu Cys Ala Gly Val
247         35                  40                  45
249 Ala Leu Ser Arg Leu Val Leu Arg Arg Asn Ala Leu Arg Arg Pro Phe
250     50                  55                  60
252 Tyr Ser Asn Ala Pro Gln Glu Ile Phe Ile Gln Gln Gly Arg Gly Tyr
253 65                  70                  75                  80
255 Phe Gly Leu Ile Phe Pro Gly Cys Pro Arg His Tyr Glu Glu Pro His
256                 85                  90                  95
258 Thr Gln Gly Arg Arg Ser Gln Ser Gln Arg Pro Pro Arg Arg Leu Gln
259             100                 105                 110
261 Gly Glu Asp Gln Ser Gln Gln Gln Arg Asp Ser His Gln Lys Val His
262         115                 120                 125
264 Arg Phe Asp Glu Gly Asp Leu Ile Ala Val Pro Thr Gly Val Ala Phe
265     130                 135                 140
267 Trp Leu Tyr Asn Asp His Asp Thr Asp Val Val Ala Val Ser Leu Thr
268 145                 150                 155                 160
270 Asp Thr Asn Asn Asn Asp Asn Gln Leu Asp Gln Phe Pro Arg Arg Phe
271                 165                 170                 175
273 Asn Leu Ala Gly Asn Thr Glu Gln Glu Phe Leu Arg Tyr Gln Gln Gln
274             180                 185                 190
276 Ser Arg Gln Ser Arg Arg Arg Ser Leu Pro Tyr Ser Pro Tyr Ser Pro
277         195                 200                 205
279 Gln Ser Gln Pro Arg Gln Glu Glu Arg Glu Phe Ser Pro Arg Gly Gln
280     210                 215                 220
282 His Ser Arg Arg Glu Arg Ala Gly Gln Glu Glu Glu Asn Glu Gly Gly
283 225                 230                 235                 240
285 Asn Ile Phe Ser Gly Phe Thr Pro Glu Phe Leu Glu Gln Ala Phe Gln
286                 245                 250                 255
288 Val Asp Asp Arg Gln Ile Val Gln Asn Leu Arg Gly Glu Thr Glu Ser
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RAW SEQUENCE LISTING DATE: 02/22/2001
PATENT APPLICATION: US/09/267,719B TIME: 10:32:00

Input Set : A:\Hsl10p1.app
Output Set: N:\CRF3\02222001\I267719B.raw

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289              260                 265                 270
291 Glu Glu Glu Gly Ala Ile Val Thr Val Arg Gly Gly Leu Arg Ile Leu
292          275                 280                 285
294 Ser Pro Asp Arg Lys Arg Arg Ala Asp Glu Glu Glu Glu Tyr Asp Glu
295      290                 295                 300
297 Asp Glu Tyr Glu Tyr Asp Glu Glu Asp Arg Arg Arg Gly Arg Gly Ser
298 305                 310                 315                 320
300 Arg Gly Arg Gly Asn Gly Ile Glu Glu Thr Ile Cys Thr Ala Ser Ala
301                 325                 330                 335
303 Lys Lys Asn Ile Gly Arg Asn Arg Ser Pro Asp Ile Tyr Asn Pro Gln
304              340                 345                 350
306 Ala Gly Ser Leu Lys Thr Ala Asn Asp Leu Asn Leu Leu Ile Leu Arg
307          355                 360                 365
309 Trp Leu Gly Leu Ser Ala Glu Tyr Gly Asn Leu Tyr Arg Asn Ala Leu
310      370                 375                 380
312 Phe Val Ala His Tyr Asn Thr Asn Ala His Ser Ile Ile Tyr Arg Leu
313 385                 390                 395                 400
315 Arg Gly Arg Ala His Val Gln Val Val Asp Ser Asn Gly Asn Arg Val
316                 405                 410                 415
318 Tyr Asp Glu Glu Leu Gln Glu Gly His Val Leu Val Val Pro Gln Asn
319              420                 425                 430
321 Phe Ala Val Ala Gly Lys Ser Gln Ser Glu Asn Phe Glu Tyr Val Ala
322          435                 440                 445
324 Phe Lys Thr Asp Ser Arg Pro Ser Ile Ala Asn Leu Ala Gly Glu Asn
325      450                 455                 460
327 Ser Val Ile Asp Asn Leu Pro Glu Glu Val Val Ala Asn Ser Tyr Gly
328 465                 470                 475                 480
330 Leu Gln Arg Glu Gln Ala Arg Gln Leu Lys Asn Asn Asn Pro Phe Lys
331                 485                 490                 495
333 Phe Phe Val Pro Pro Ser Gln Gln Ser Pro Arg Ala Val Ala
334              500                 505                 510
337 <210> SEQ ID NO: 4
338 <211> LENGTH: 473
339 <212> TYPE: PRT
340 <213> ORGANISM: Glycine max
342 <400> SEQUENCE: 4
343 Met Ala Ser Lys Val Val Ser Val Leu Val Ile Ala Met Met Leu Phe
344   1               5                  10                  15
346 Ala Met Asn Cys Asn Cys Thr Ser Val Gly His Met Pro Ser Thr Lys
347              20                  25                  30
349 Glu Glu Gly His Asp Phe Gln Glu Ser Lys Ala Lys Thr Thr Gln Thr
350          35                  40                  45
352 Ala Asn Lys Ala Met Glu Thr Gly Lys Glu Gly Gln Glu Ala Ala Glu
353      50                  55                  60
355 Ser Trp Thr Glu Trp Ala Lys Glu Lys Leu Ser Glu Gly Leu Gly Phe
356  65                  70                  75                  80
358 Lys His Asp Gln Glu Ser Lys Glu Ser Thr Thr Asn Lys Val Ser Asp
359                 85                  90                  95
361 Tyr Ala Thr Asp Thr Ala Gln Lys Ser Lys Asp Tyr Ala Thr Asp Thr
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FYI:

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

VERIFICATION SUMMARY DATE: 02/22/2001
PATENT APPLICATION: US/09/267,719B TIME: 10:32:01

Input Set : A:\Hsl10pl.app
Output Set: N:\CRF3\02222001\I267719B.raw

L:497 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:5
L:572 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:6
L:575 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:6
L:678 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7
L:681 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7
L:914 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10